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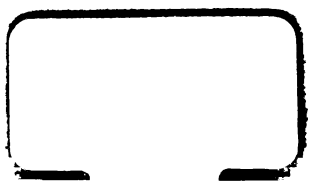
Harvard College Library

FROM

Connecticut State Library



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State of Connecticut

PUBLIC DOCUMENT No. 41

REPORT

OF THE

EXAMINER OF PUBLIC RECORDS

For the Two Years Ended September 30, 1914

PRINTED IN ACCORDANCE WITH THE STATUTE

HARTFORD
PUBLISHED BY THE STATE
1915

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CONNECTICUT STATE LIBRARY

HARTFORD, Oct. 3, 1914.

To His Excellency,
Simeon E. Baldwin, Governor.

Sir:

I have the honor to submit herewith the second report of the Examiner of Public Records made to the State Librarian under the provisions of Chapter 58 of the Public Acts of 1911, which act made the supervision of the public records of our state a part of the work of the State Librarian.

In his first report Mr. Barbour, who entered upon his duties as Examiner of Public Records July 5, 1911, confined his attention to the condition of records, vaults and safes in the offices of the several town clerks and judges of probate throughout the state, based upon personal observation during the fifteen months preceding September 30, 1912, during which time he personally visited and inspected each of these offices.

In the following report for the two years ended September 30, 1914, he has confined his attention more especially to the erection of new vaults; the purchase of new safes; the installation of metal equipments; the restoration, repairing, binding, copying and publication of records; the depositing in the State Library of official papers not in current use; and the testing of inks and typewriter ribbons, as directed by the General Assembly of 1913.

I am of the opinion that the recommendation of the Examiner, advising that an official selection of brands of paper suitable for record purposes be made from actual tests, should receive special attention, for such selection, I believe, would work no hardship, would prevent the use of inferior papers unwittingly, and would be welcomed by the several officials of the state.

Respectfully submitted,

Geo. S. Godard.

State Librarian.

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STATE OF CONNECTICUT

EXAMINER OF PUBLIC RECORDS

STATE LIBRARY

HARTFORD, Sept. 30, 1914.

To

George S. Godard, State Librarian,
State Library, Hartford, Conn.

I herewith submit my second report as Examiner of Public Records in accordance with Section 2, Chapter 58 of the Public Acts of 1911 being the eighth report on Public Records of this State.

OUTLINE OF WORK ACCOMPLISHED

In the appendix to my previous report, Public Document No. 41, general conditions in the several towns and probate districts were noted, and in certain cases recommendations made to improve conditions. That all the recommendations have been complied with I cannot at this time make definite statement not having had the opportunity to re-visit every office. Where it has been possible for me to make personal re-examination of conditions I have found my previous suggestions heeded or considered and a desire to follow suggestions.

Since my last report new vaults have been provided for the records of the following towns:

Cheshire	New London
East Haven	Putnam
Harwinton	

and new safes in the following:

Canterbury	Preston
East Lyme	Sherman
Hartland	Sterling
Old Lyme	

Metal equipment has been supplied for vaults in the following towns:

Cheshire	New London
East Haven	North Canaan
Harwinton	Putnam
Manchester	Salisbury

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Repairs to volumes have been made in the following towns:

Avon	Newtown
Brookfield	Norwich
East Windsor	Old Saybrook
Enfield	Plainfield
Fairfield	Pomfret
Franklin	Stonington
Haddam	Stratford
Hartford	Suffield
Hartland	Union
Hebron	Wallingford
Lebanon	Washington
Mansfield	Willington
New Hartford	Woodstock
New London	

Maps of the following towns deposited with Town Clerks for record have been remounted and repaired:

Bethel	Norwich
East Lyme	Stonington
Manchester	Suffield
New London	Waterbury
New Haven	

Files of closed estates have been deposited in the State Library under the authority granted in Chapter 175 of the Public Acts of 1909 by the following probate districts:

Ashford	Norwich
Avon	Old Saybrook
Barkhamsted	Saybrook
Burlington	Simsbury
Eastford	Thompson
Granby	Torrington
Lebanon	Westbrook
Lyme	Voluntown
Mansfield	

Miscellaneous papers not in current use have been deposited under the authority granted in the same act by the town of Avon.

The result of tests of inks and ribbons as directed by the General Assembly of 1913 appears on pages 8-18 of this report.

Publication

The laws of the State, relative to Public Records, have been compiled under the direction of this office, printed in the form of a hand-book and distributed to recording officials.

Publication of Records

Up to this time the Vital Records of the following towns have been printed in more or less complete form:

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Bolton — Vital Records of Bolton to 1854 and Vernon to 1852. By the Connecticut Historical Society. Hartford, 1909.

Cheshire — History of Cheshire, Conn., from 1694 to 1840, including Prospect ****. By Lady Fenwick Chapter, D. A. R. Cheshire, 1912.

Coventry — Births, Marriages, Baptisms and Deaths **** in Coventry, Connecticut, 1711-1844. By Susan Whitney Dimock. New York, 1897.

Derby — Town Records of Derby, Conn, 1655-1710. By the Sarah Riggs Humphreys Chapter, D. A. R. Derby, 1901.

Durham — History of Durham, Ct. from **** 1662 to 1866. By the Town. Hartford, 1866.

Enfield — The History of Enfield, Conn. (3 vols.). By Francis Olcott Allen. Lancaster, Pa., 1900.

Litchfield — A Genealogical Register of the Inhabitants of the Town of Litchfield, Ct., **** 1720 to the year 1800 **** By George C. Woodruff. Hartford, 1900.

Mansfield — Births, Baptisms, Marriages and Deaths **** in Mansfield, Conn., 1703-1850. By Sarah W. Dimock. New York, 1898.

Meriden — An Historic Record and Pictoral Description of the Town of Meriden **** by C. Bancroft Gillespie and George Munson Curtis. Journal Publishing Co., Meriden, 1906.

Norwich — Vital Records of Norwich, 1659-1848. (2 vols.) Society of Colonial Wars in the State of Conn. Hartford, 1913.

Salisbury — Historical Collections Relating to the Town of Salisbury, Litchfield County, Conn. Vol. 1. By The Salisbury Assoc., Inc., 1913.

Sharon — A Record of Births, Marriages and Deaths in the Town of Sharon, Conn., from 1721 to 1879. By Lawrence Van Alstyne, Sharon, 1897.

Simsbury — Simsbury, Connecticut, Births, Marriages and Deaths ****. By Albert C. Bates, Hartford, 1898.

Vernon — See Bolton above.

Copies of Records

It has come to my attention that copies of the Early Vital Records of the following towns have during the last few years been privately made:

Ashford	Canterbury
Avon	Chaplin
Barkhamsted	Chatham
Bozrah	Chester
Branford	Clinton
Bridgeport	Colchester
Bristol	Colebrook
Brooklyn	Columbia

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Eastford	North Stonington
East Haddam	Orange
East Haven	Plainfield
Ellington	Pomfret
Franklin	Portland
Griswold	Preston
Groton	Redding
Guilford	Salem
Haddam	Saybrook
Hamden	Southington
Hampton	Stafford
Hartland	Sterling
Huntington	Stonington
Killingly	Stratford
Killingworth	Suffield
Lebanon	Thompson
Ledyard	Tolland
Lisbon	Union
Lyme	Voluntown
Madison	Washington
Marlborough	Waterford
Middletown	Willington
Milford	Windham
New Haven	Windsor
New London	Woodbridge
North Haven	Woodstock

Tests of Inks and Typewriter Ribbons

The Attorney-General in the following communication defines and interprets Chapter 170 of the Public Acts of 1913, which Act transfers the recommendation of inks and typewriter ribbons from the Secretary of State to the Examiner of Public Records:

Hartford, August 6, 1913.

Lucius B. Barbour, Esq.,
Examiner of Public Records.

Dear Sir:—I have your favor in which you say:

> "I desire information regarding your interpretation of Chapter 170 of the Public Acts of 1913, which amends Sections 113, 114, 115 and 117 of the General Statutes, which act transfers the supervision of inks for recording purposes from the office of the Secretary of State to this office, and was made at the request of the Secretary of State.
>
> Is my inference correct that typewriter ribbons, as used for recording purposes, comes under the jurisdiction for approval of the Examiner of Public Records?
>
> Am I right in assuming that the National Bureau of Standards is considered a State Chemist? (See Federal Statutes Annotated, Vol. 7, page 1113, Sec. 3.)"

Your inference is correct that typewriter ribbons, used for record purposes, must be approved by the Examiner of Public Records. (Sec. 116 G. S.)

You are not right in assuming that the National Bureau of Standards is considered a State Chemist. The fact that the bureau is required to exercise its functions for any state or municipal government within the United States, when requested to do so, in accordance with the rules and regulations of the bureau, does not constitute the bureau a State Chemist.

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We have several State Chemists appointed under the authority of Sec. 74 of the General Statutes. Before you approve of any ink, including ink used on typewriters and typewriter ribbons, you are required to cause a number of distinct and separate brands to be examined as to quality by one of these chemists.

Very truly yours,

JOHN H. LIGHT,
Attorney-General.

RECORDING INKS

In accordance with the foregoing I requested Mr. James A. Newlands, State Chemist, to make examination of samples of forty different brands of inks and writing fluids purchased by me in several different towns and cities in this State. The following correspondence includes his report:

Hartford, Conn., Jan. 24, 1914.

HON. LUCIUS B. BARBOUR,
Examiner of Public Records,
Hartford, Conn.

Dear Sir:—The following report covers the examination of forty inks submitted by you from samples purchased in the open market for the purpose of determining the brands most suitable for use on the public record books of this state.

In determining the value of an ink for this purpose it is obvious that while the appearance of the fresh writing, keeping quality in ink wells, the action on steel pens, etc., are factors worthy of consideration, the most important requirement is, necessarily, permanency of the record. It is also evident that in the study of a number of inks the characteristic of permanency must be judged largely upon the results obtained from accelerated bleaching tests. It is essential, therefore, that the methods adopted should be fair alike to both parties, to the end that only the best inks may be used on the public record books, while the manufacturer may not be subjected to unnecessarily severe or unreliable applications of such comparative tests.

HISTORICAL

A study of the published investigations of the very numerous types of inks which have been invented in the past shows quite conclusively that the so-called iron-gall or iron-tannate ink has gradually come to be recognized as the most acceptable ink where permanency of the record is of importance, and for this reason all other types of ink may fairly be eliminated from competition in the present investigation. As early as 1879 the German government passed a law prohibiting the use of other than iron-gall inks on its official record books, and later, in 1888, published rules covering the methods of testing and classifying the inks proposed for permanent records. In 1890 Schluttig and Neumann published the results of their extensive investigations in connection with iron-gall inks, and while advocating the use of this ink, they criticised severely some of the methods for its regulation as adopted by the German government.

In this country the subject was first taken up by the state of Massachusetts about twenty years ago, and as a result of considerable study, the iron-gall ink was adopted as a standard, the detailed formula for which is given in a later paragraph.

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The standard ink is similar in composition to certain inks which have been in use for several hundred years, as disclosed by the crude recipes to be found on various old foreign manuscripts and also on the first pages of some of the old Massachusetts town record books, but to Schluttig and Neumann is due the credit for first presenting a definite formula for iron-gall ink, based upon the combining quantities of its chemical constituents. This formula was the one accepted as the standard for Massachusetts, and was later adopted by the United States Treasury Department, and by other government bureaus.

DESCRIPTION OF IRON-GALL (IRON-TANNATE) INK

In the present investigation a standard ink was prepared and used as a basis for determining the relative values of the inks submitted by you for examination, and the following brief description of its constituents and chief characteristics may be of interest.

Gallo-tannate of iron (iron-gall, or iron-tannate) ink is made by the admixture, within certain proportions, of pure tannic acid and gallic acid with ferrous sulphate (sulphate of iron); to which mixture are added gum arabic and small amounts of hydrochloric and carbolic acids, and the whole diluted with a definite amount of water. To this mixture is also added just sufficient coloring matter to give the ink a temporary color, as the pure gallo-tannate ink, without coloring matter, will write with a dirty gray-green color when the characters are first formed. Upon exposure to the atmosphere oxidation occurs, precipitating a tannate of iron and making a black record which possesses a very high degree of permanency. Too little iron produces an ink which fades rapidly under adverse conditions, while too much iron and tannic acid will cause difficulties due to thickening.

Upon exposure to the air, as in an ink-well, the ink has a tendency to oxidize, resulting in the production of a sediment of iron tannate, hence the addition of a small amount of gum arabic which increases the "body" of the fluid and helps to hold such insoluble matters in suspension. The gum arabic also improves the writing quality of the ink. Carbolic acid acts as a preservative, inhibiting the formation of molds and the resulting decomposition of the ink. The addition of acid is necessary to hold the iron in solution. This small amount of free acid is responsible for the familiar corrosive action on steel pens, but does not harm the paper upon which the ink is used, owing to the fact that, unless present in excess, such free acid is neutralized by the alkaline substances always contained in the paper.

STANDARD INK

There are many details in connection with the manufacture of inks that are best left under the control of the manufacturer; the common practice, therefore, is not to prescribe the exact composition of the ink that shall be used, nor the exact details of manufacture, other than to stipulate that the acceptable ink shall be a gallo-tannate of iron ink, not inferior in any essential quality to an ink prepared from the standard formula, which, as adopted by the state of Massachusetts and the United States Treasury Department, is compounded in accordance with the formula proposed by Schluttig and Neumann, viz:

	Parts by weight.
Pure dry tannic acid	23.4
Gallic Acid in crystals	7.7
Ferrous sulphate	30.0
Gum arabic	10.0
Dilute hydrochloric acid	25.0
Carbolic acid	1.00

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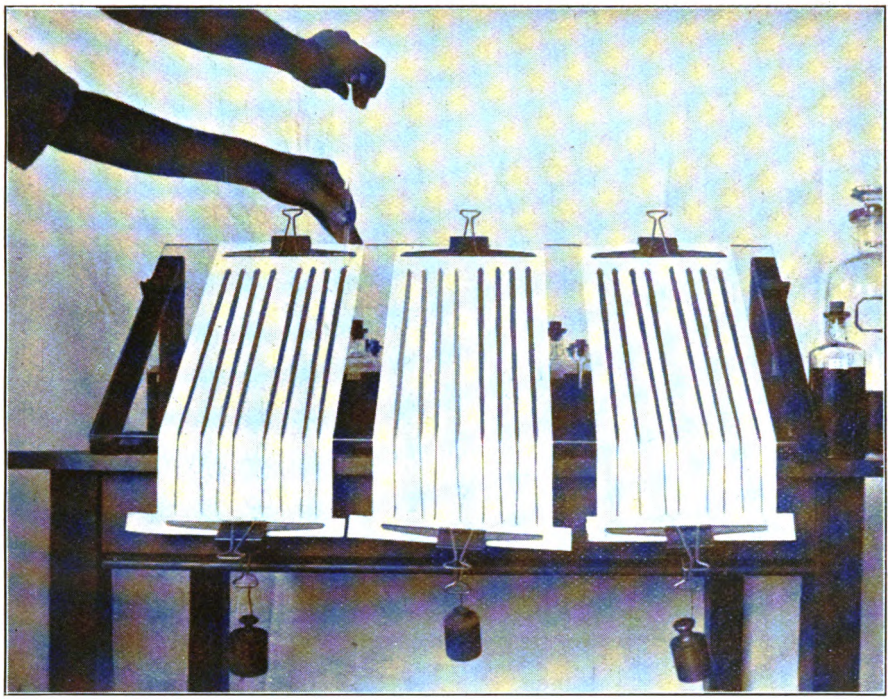
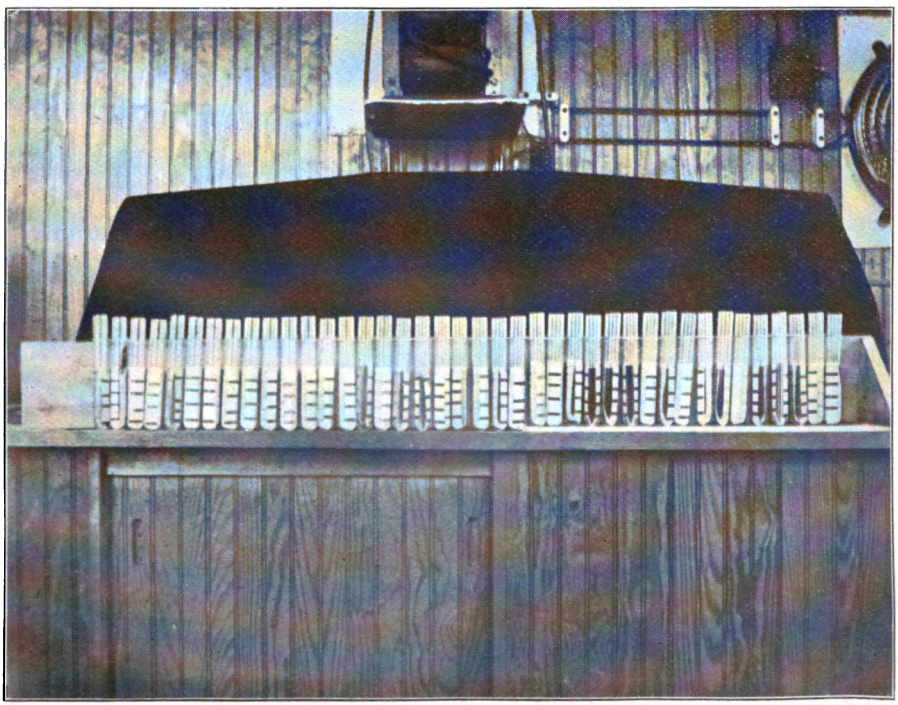


"Method used for making ink streaks. Four streaks made on each sheet in the sample ink; four streaks with standard ink."



"Reagent tests showing method for immersing streaks in tests of liquid."

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To these ingredients must be added just sufficient water to make up the mixture, at a temperature of 60° F., to 1000. parts by weight.

A sufficient quantity of soluble blue colloring matter is added to give an immediate blue-black color.

The above composition represents the minimum content of iron, etc., for a permanent "record ink." For other grades of ink known as "copying ink" and "combined ink," or both record and copy, it is necessary that the iron content be increased appreciably and usually other materials are added to promote the transfer of a heavy impression during the copying process. The means or ingredients used to accomplish this result are left to the option of the manufacturer, the prescribed competitive tests being such as to eliminate undesirable inks.

COMPETITIVE TESTS

The inks submitted for examination were received in plain bottles labeled only with an individual number, the original containers, marked with corresponding numbers, having been retained at your office. The samples were tested in competition with the standard ink under the following series of tests (U. S. Treasury Department requirements).

(a) A fluid ounce allowed to stand at rest in a white glass vessel, freely exposed in diffused daylight for two weeks to the light and air, at ordinary room temperatures, protected against the entrance of dust, must remain free from deposit upon the surface of the ink or on the bottom and sides of the vessel.

(b) It must contain no less iron, and must have a specific gravity of 1.035 to 1.040 at 60° F.

(c) It must develop its color as quickly.

(d) After a week's exposure to diffused daylight the color must be as intense a black when used upon paper, and it must equally resist changes from exposure to light, water, air, alcohol, and bleaching agents.

(e) It must be as fluid, flow as well, strike in no more through the paper, nor remain more sticky immediately after drying.

(f) The copying ink shall be made to be the same as the writing fluid, but with the addition of a sufficient quantity of the proper material to make it a competent copying ink.

(g) The copying ink shall be tested also as to the permanency of the impressions made on copying paper.

Acceptable record inks will sometimes show a specific gravity slightly above 1.040 and this fact is now recognized by the officials of the Contracts Laboratory at Washington in passing upon the quality of inks for government use. The writer desires here to acknowledge his indebtedness to Dr. Percy H. Walker, Chief of the Federal Contracts Laboratory, for the above specifications and for other valuable data relative to the procedure now used at that laboratory in the classification of inks and typewriter ribbons for government work.

It will be noted that the foregoing tests cover not only the chemical constituents of the ink but also its physical characteristics as indicated by atmospheric and accelerated bleaching tests. These tests were carried out on all of the inks submitted for examination as shown by the detailed results and exhibits appended to this report. The following rating system (adopted by Contracts Laboratory, Washington) was used as a basis for determining the relative values of the various inks, the different desirable qualities of the ink being assigned a certain weight and each ink being rated in comparison with the standard ink subjected to the same tests.

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	Rating of Standard Ink.
Color must be equal to standard or ink is not considered.	
Appearance must be equal to standard or ink is not considered.	
Fading action of light, Maximum rating allowed is 80. Standard given a value of	70.
Effect of regeants. Maximum allowed is 15. Standard rating is	10.
Composition. Max. allowed 5. Standard is . .	5.
Keeping qualities, etc. Max. 20. Standard is . .	15.
Total possible rating is 120. Standard is . . .	100.

In the above rating scheme it will be noted that allowance is made for the possibility that certain characteristics of the competing ink may be better than that of the standard and that the total rating of such an ink may exceed 100., as was the case with some of the inks under consideration.

INTERPRETATION OF RESULTS

Without going into a detailed explanation of the mass of data obtained during this investigation it may be stated that thirteen of the samples were eliminated from the competition by reason of the fact that they contained no iron. However, the entire series of chemical and physical tests were completed on all of the inks for the purpose of showing the ratings of the inks free from iron as compared with the iron-gall type. Of the remaining twenty-seven samples twenty-one contained less iron than the minimum amount required for a standard record ink. Two others were very high in iron content and while one of these received the highest rating for the "effect of sunlight test" it was rejected because of its decided tendency to thicken on standing in an ink well and a high specific gravity. The other high iron ink failed in other respects and was also rejected. The remaining four inks approximated quite closely the composition and characteristics of the standard inks and have been classed as suitable for use on the record books of this state. These samples were marked as follows:

No. 5
No. 14
No. 17
No. 23.

The relative values of the inks examined are shown in the following summary of ratings which are based upon the composition, keeping quality, effect of reagents and sunlight tests to which reference has already been made.

RATING TABLE

Sample number	Iron	Composition	Effect of reagents	Keeping quality	Effect of sunlight	Total rating	Remarks
Standard	O. K.	5.	10.	15.	70.	100.	
1	None	0.	11.	4.	63.	78.	
2	Low	2.	10.	15.	56.	83.	
3	Low	2.	10.	14.	42.	68.	
4	Low	2.	10.	15.	56.	83.	
5	O. K.	5.	11.	14.	73.	103.	Passed

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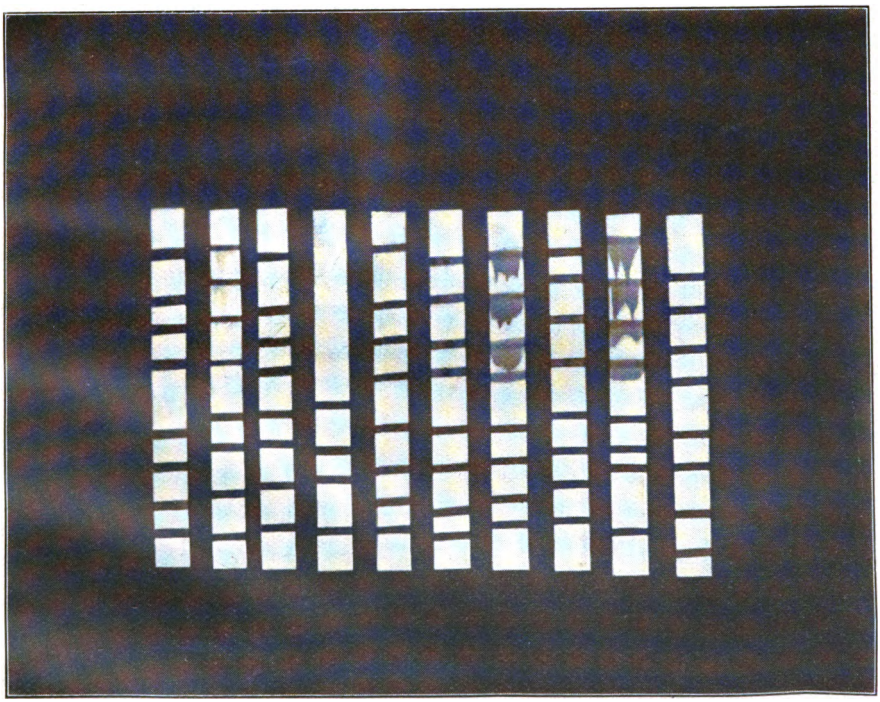
"Method of exposing ink streaks to sunlight."



"Some results from exposure to weather tests. Upper four streaks, samples; lower four streaks, standard ink."

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Summary of Ink Tests
for the
State of Connecticut

	Chemical Analysis					Chemical and Physical Characteristics					Chemical Reagent Tests																								Sunlight				Ratings				
	Specific Gravity at 15.5°C	Total Solids %	Ash %	Iron %	Sulphates % as SO4	Action on Steel Pens: Loss in Wt.	Action on Steel Pens: Effect	Action on Steel Pens: Rating 1-5	Keeping in Ink Wells: Time 14 days	Streak Test: Readiness Rating 1-5	Streak Test: Fluidity Rating 1-5	Streak Test: Evenness Rating 1-5	Character of Writing: Immediate Color	Character of Writing: After 2 days	Water: 15 minutes	Water: 1 hour	Water: 24 hours	Alcohol 95%: Rating 1-5	Alcohol 95%: 15 minutes	Alcohol 95%: 1 hour	Alcohol 95%: 24 hours	Water-90% Ammonia-10%: Rating 1-5	Water-90% Ammonia-10%: 15 minutes	Water-90% Ammonia-10%: 1 hour	Water-90% Ammonia-10%: 24 hours	Water-90% Ammonia-10%: Change in Color 15 min.	Water-90% Ammonia-10%: Change in Color 24 hrs.	Alcohol-90% Ammonia-10%: Rating 1-5	Alcohol-90% Ammonia-10%: 15 minutes	Alcohol-90% Ammonia-10%: 1 hour	Alcohol-90% Ammonia-10%: 24 hours	Alcohol-90% Ammonia-10%: Change in Color	Hydrochloric Acid-2%: Rating 1-5	Hydrochloric Acid-2%: 15 minutes	Hydrochloric Acid-2%: 1 hour	Hydrochloric Acid-2%: 24 hours	Hydrochloric Acid-2%: Change in Color.	Sodium Hydroxide-2%: Rating 1-5	Sodium Hydroxide-2%: 15 minutes	Sodium Hydroxide-2%: 1 hour	Sodium Hydroxide-2%: 24 hours	Sodium Hydroxide-2%: Change in Color	Bleaching Powder 1/200: Rating 1-5	Bleaching Powder 1/200: 15 minutes	Bleaching Powder 1/200: 1 hour	Bleaching Powder 1/200: 24 hours	Bleaching Powder 1/200: Change in Color	Sunlight 30 days: Diluted	Sunlight 30 days: Undiluted	Weather 20 days: Diluted	Weather 20 days: Undiluted	Polarized Light 20 days	Composition	Reagents	Keeping Qualities	Sunlight Exposure	Total Ratings	Laboratory Number
1	1.0350	5.14	1.13	.60	.86	18.8	No Sweat	5	ok.	5	N	N	N	5	Grey	Black	1	1	1	1	1	1	1	2	2	Brown	Brown	4	1	1	1	Black	1	4	4	4	Yellowish	0	2	2	3	Brown	1	1	1	1	1	5	10	15	70	100	1
2	1.0090	1.74	1.48	.00	.17	0.00	No Sweat	0	Thickened	0	W	N	N	4	Pale Blue	Grey Blue	3	1	1	1	1	1	1	3	3	Blue	Blue	3	1	1	1	Blue	1	2	2	3	Violet	1	2	2	1	2	3	3	4	3	1	2	0	11	4	65	75	2
3	1.0222	3.57	.58	.29	.82	21.1	Bunches	5	ok.	5	N	N	N	5	Blue	Blue	1	1	1	1	1	1	1	2	2	Brown	Brown	1	1	1	1	Black	5	1	2	2	"	3	2	2	3	Brown	1	1	2	1	2	3	5	3	2	2	2	10	15	56	83	3
4	1.0192	3.00	.54	.28	.89	30.0	"	4	ok.	5	N	N	N	5	"	"	1	1	1	1	1	1	1	2	2	"	Yellow	1	1	1	1	"	1	2	2	2	"	3	2	2	3	"	1	1	2	3	5	3	6	3	5	2	2	10	14	72	68	4
5	1.0218	3.54	.74	.32	.93	20.9	"	5	ok.	5	N	N	N	5	"	"	1	1	1	1	1	1	1	2	2	"	Brown	1	1	1	1	"	1	2	2	2	"	3	2	2	3	"	1	1	2	3	5	3	4	8	2	5	2	2	10	13	58	83	5
6	1.0244	5.25	1.19	.60	1.01	30.0	"	4	ok.	5	N	N	N	5	"	"	1	1	1	1	1	1	1	2	2	"	Brown	1	1	1	1	"	1	2	2	2	"	3	2	2	3	"	1	1	2	2	4	3	1	2	4	3	2	10	14	73	103	6
7	1.0223	.74	.23	.00	.02	2.6	Scum	1	Film	4	N	N	N	3	"	Blue	2	2	3	3	2	2	3	3	2	2	3	Blue	Violet	5	1	1	4	Green	0	3	3	4	Grey	0	1	3	2	Blue	1	2	2	2	3	6	6	1	2	1	2	0	4	8	7	21	7
8	1.0018	.61	.11	.02	.02	2.2	Wavelet	1	Sediment	3	N	N	N	4	Green	Blue	1	1	1	1	2	2	3	3	3	Grey	Brown	5	1	1	1	Grey	2	1	1	1	Blue	5	1	3	4	4	Brown	5	2	2	3	3	6	6	2	2	1	2	0	7	8	14	29	8
9	1.0188	2.92	.85	.38	.86	10.8	Bunches	4	ok.	5	W	N	N	5	Green Blue	Black	1	1	1	1	2	2	3	3	3	Brown	"	5	1	1	1	"	5	3	3	3	"	5	2	3	3	"	1	1	2	3	3	2	2	5	2	3	2	2	10	14	56	82	9
10	1.0127	3.70	.85	.34	.81	14.8	"	5	ok.	5	W	N	N	5	Blue	Blue	1	1	1	1	2	2	2	2	2	"	"	1	1	1	1	Blue	1	2	2	2	"	5	2	3	4	"	2	2	3	4	5	2	4	8	2	4	2	2	9	15	56	82	10
11	1.0174	3.19	1.21	.00	.02	14.6	"	5	Sediment	3	W	N	N	5	Violet	Violet	1	1	1	1	2	2	2	2	2	Grey	"	1	1	1	1	Black	1	1	1	1	Violet	1	2	2	2	Grey	2	1	1	1	1	3	5	3	5	2	0	13	11	35	58	11
12	1.0233	4.13	.78	.38	.80	12.3	"	5	Vi. Sediment	4	W	N	N	5	Blue	Black	1	1	1	1	2	2	2	2	2	Brown	"	1	1	1	1	"	1	2	2	2	Blue	5	2	2	3	Brown	1	1	2	3	5	2	3	0	2	3	2	2	10	14	56	82	12
13	1.0167	2.60	2.69	.10	2.04	36.8	"	4	Thickened	0	W	N	N	5	Green	"	1	1	1	1	2	2	2	2	2	"	"	1	1	1	1	"	1	2	2	2	Green	5	2	2	3	"	1	1	2	1	1	1	4	1	1	1	1	3	11	10	80	101	13
14	1.0237	2.24	1.57	.63	1.37	24.0	"	5	Sediment	5	N	N	N	5	Blue	"	1	1	1	1	2	2	2	2	2	"	"	1	1	1	1	"	1	2	2	2	Blue	5	2	2	3	"	5	1	2	1	2	3	4	5	2	3	2	2	10	15	73	103	14
15	1.0123	2.38	2.25	.00	.02	4.3	No Sweat	2	Sediment	3	W	N	N	4	Violet	"	1	1	1	1	2	2	2	2	2	Grey	Grey	1	1	1	1	Blue	1	2	2	2	Violet	1	2	2	2	Grey	2	1	3	3	5	6	3	2	6	2	2	0	12	9	41	42	15
16	1.0098	2.31	1.47	.00	.21	.34	"	2	Thickened	0	W	N	N	4	Blue	"	1	1	1	1	2	2	3	3	3	Blue	Grey	5	1	1	1	"	1	2	2	2	Blue	1	2	2	3	Violet	1	1	3	3	3	5	4	1	2	1	2	0	10	6	63	79	16
17	1.0489	7.61	4.36	.30	1.01	28.2	Bunches	4	Film	4	N	N	N	5	"	"	1	1	1	1	2	2	2	2	2	"	Brown	1	1	1	1	Black	1	2	2	2	"	5	2	2	3	Brown	1	1	2	1	2	3	3	1	2	1	2	0	13	13	73	102	17
18	1.0191	2.93	.74	.22	.87	21.1	"	5	ok.	5	N	N	N	5	"	Blue	1	1	1	1	2	2	2	2	2	"	"	1	1	1	1	Blue	1	2	2	2	"	5	2	3	3	"	1	1	3	3	5	5	4	6	3	4	2	2	11	10	15	62	88	18
19	1.0113	2.48	.36	.00	.21	6	No Sweat	1	Vi. Film	5	W	N	N	3	Black	Black	1	1	1	1	1	1	1	1	1	Black	Black	1	1	1	1	"	1	1	1	1	Black	5	1	1	1	Black	3	1	1	1	1	2	3	1	1	1	1	0	13	9	63	87	19
20	1.0193	2.94	.53	.22	.74	16.0	Mould	5	ok.	4	W	N	N	4	Blue	Blue	1	1	1	1	2	2	2	2	2	Brown	Brown	1	1	1	1	Grey	1	2	2	2	Blue	5	2	3	4	Brown	5	1	2	3	4	4	3	1	3	2	2	0	9	13	49	73	20
21	1.0463	3.88	1.42	.00	.44	7.4	Scum	3	Vi. Thickened	3	W	N	N	4	Violet	Violet	3	3	3	3	1	1	2	3	4	Pink	Faded	3	1	2	2	Blue	5	1	1	1	"	1	2	3	3	Violet	1	1	2	4	4	2	7	1	3	1	2	0	7	10	49	66	21
22	1.0533	1.34	.04	.00	.14	22.2	Bunches	5	Sediment	3	W	N	N	4	Red	"	2	2	2	2	1	2	2	2	2	Blue	Brown	1	1	1	1	Black	5	4	4	4	Orange	0	2	2	2	"	1	1	2	1	1	1	2	7	1	0	1	0	8	12	20	90	22
23	1.0438	2.56	.32	.14	.31	26.0	"	2	"	4	W	N	N	5	Blue	"	1	1	1	1	2	2	2	2	2	Brown	"	1	1	1	1	Blue	1	2	2	3	Green	5	2	2	4	Brown	5	1	1	2	1	1	5	11	10	23	99	23
24	1.0170	2.84	.92	.23	.70	15.9	"	5	Vi. Film	4	N	N	N	5	"	"	1	1	1	1	2	2	2	2	2	"	"	1	1	1	1	Blue	1	2	2	2	"	5	2	2	4	"	5	1	2	3	5	4	5	2	3	1	2	0	9	14	56	80	24
25	1.0126	2.86	.53	.18	.50	13.0	Scum	5	Vi. Sediment	3	N	N	N	5	"	"	2	2	2	2	2	2	2	3	3	"	"	5	1	1	1	Grey	1	2	2	3	"	3	2	3	4	"	5	1	2	3	5	4	0	6	6	7	3	3	11	7	13	42	63	25
26	1.0103	1.54	.58	.10	.23	7.8	Bunches	3	"	4	N	N	N	5	"	"	2	2	2	2	2	2	2	3	3	"	"	5	1	1	1	"	1	3	3	3	"	3	3	4	4	"	5	2	3	4	0	5	6	3	6	7	3	1	6	12	21	40	26
27	1.0394	4.77	1.71	1.12	.12	46.8	Scum	1	Film	4	W	N	N	4	"	Grey	1	1	1	1	2	2	2	3	3	Brown	Yellow	1	2	2	3	Brown	3	2	2	3	"	3	2	2	2	Orange	2	1	2	3	5	5	6	4	5	6	3	4	0	10	9	28	47	27
28	1.0332	5.36	1.63	.41	1.09	19.2	Bunches	5	Vi. Film	4	W	N	N	5	"	Black	1	1	2	5	1	1	1	2	2	"	"	3	1	1	1	Blue	1	3	3	4	"	0	3	4	4	"	5	2	2	3	3	7	1	4	5	6	3	7	14	32	80	29	28
29	1.0165	2.29	.99	.00	.02	17.3	No Sweat	5	ok.	5	W	N	N	4	Violet	Blue	1	1	1	1	2	2	2	2	2	Grey	Grey	1	1	1	1	Black	1	1	1	1	Violet	3	2	2	2	Grey	2	1	1	3	5	6	6	3	3	7	2	2	0	11	14	21	46	29
30	1.0187	2.43	.93	.00	.01	6.5	"	5	ok.	5	W	N	N	4	"	Violet	1	1	1	1	2	2	2	2	2	"	Brown	1	1	1	1	Grey	1	1	1	1	Violet	5	2	2	2	"	2	1	1	3	5	6	3	3	7	2	2	2	0	11	14	21	46	30
31	1.0071	1.26	.99	.00	.20	7.3	Scum	3	ok.	5	W	N	N	4	Blue	Blue	2	2	2	3	3	3	4	4	4	Pink	Pink	3	2	2	2	Blue	5	1	1	1	Blue	1	2	3	3	Violet	1	1	2	3	3	4	5	8	2	8	2	2	0	8	12	56	76	31
32	1.0173	2.86	.76	.17	.58	10.1	Bunches	5	Film	3	W	N	N	4	"	"	1	1	1	1	2	2	2	2	2	Brown	Brown	1	1	1	1	Black	1	2	2	2	"	5	2	2	4	Brown	5	1	2	3	3	5	5	3	8	2	3	2	2	9	11	56	80	32
33	1.0200	3.40	.41	.19	.60	12.5	"	4	Vi. Sediment	4	W	N	N	5	"	"	1	1	2	2	2	2	2	2	2	"	"	5	1	1	1	"	1	2	2	2	"	5	2	2	4	"	5	2	3	3	3	5	6	4	8	4	2	2	0	12	16	56	78	33
34	1.0079	1.80	.34	.00	.24	9.3	No Sweat	2	Vi. Thicken	3	W	N	N	4	Blue	Gray	3	3	3	3	1	1	1	3	4	Pink	Faded	3	1	2	2	Blue	5	1	1	1	"	1	2	3	4	Violet	1	2	3	4	4	0	4	5	8	1	2	2	0	6	11	56	78	34
35	1.0257	4.87	1.37	.86	.79	13.8	Bunches	5	ok.	4	W	N	N	4	Blue	Blue	2	2	2	2	1	1	2	2	2	Brown	Brown	1	1	1	1	Black	1	3	3	4	"	0	2	2	4	Brown	1	1	2	4	4	3	8	4	4	3	2	2	0	8	14	56	80	35
36	1.0072	1.64	.82	.00	.01	3.9	Thickened	2	ok.	4	W	N	N	3	Violet	Blue	1	1	1	1	2	2	2	2	2	Grey	Grey	1	1	1	1	Violet	1	2	2	2	Grey	3	2	2	3	Grey	2	1	2	4	5	6	6	3	4	4	3	2	0	11	9	21	41	36
37	1.0367	5.90	1.11	.44	.72	19.0	Bunches	5	ok.	4	W	N	N	5	Blue	Black	1	1	1	1	2	2	2	2	2	Brown	Brown	1	1	1	1	"	1	2	2	2	Blue	5	2	2	3	Brown	1	1	2	3	4	3	3	1	3	1	3	2	0	13	14	72	102	37
38	1.0186	2.67	.52	.26	.77	7.7	"	3	Film	4	W	N	N	5	"	"	1	1	1	1	2	2	2	2	2	"	"	1	1	1	1	Green	1	2	2	2	"	5	2	2	4	"	5	1	2	4	3	3	4	8	4	3	2	2	9	12	56	79	38
39	1.0376	6.01	1.07	.56	.87	18.7	"	5	Sediment	3	W	N	N	4	"	"	1	1	1	1	2	2	2	2	2	"	"	1	1	1	1	Black	1	2	2	2	"	5	2	2	4	"	5	1	2	4	4	3	5	10	4	2	2	1	10	12	56	78	39
40	1.0387	2.40	.74	.20	.30	18.3	"	5	Thickened	3	W	N	N	4	Black	"	1	1	2	3	1	2	3	3	3	Violet	Green	3	1	1	1	"	1	4	4	4	Orange	0	3	4	4	"	5	1	2	4	3	2	4	9	1	1	1	1	6	12	70	89	40
41	1.0328	2.14	1.29	.52	.79	23.8	"	5	ok.	5	W	N	N	5	Blue	"	1	1	2	3	2	2	3	3	3	Brown	Brown	3	1	1	1	"	1	3	3	4	Blue	5	3	4	4	"	5	1	2	4	4	3	2	4	9	1	1	1	9	13	69	97	41

Legend
1- Slightly affected
2- Badly "
3- Almost destroyed
4- Destroyed

Legend
1- None
2 Very Slightly
3- Slight
4 Marked
5 Very Marked
6 Bad
7 Very Bad

Jas. A. Newlands
State Chemist

Jan. 24 1914

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Sample number	Iron	Composition	Effect of reagents	Keeping quality	Effect of sunlight	Total rating	Remarks
7	None	0.	6.	8.	7.	21.	
8	Low	0.	7.	8.	14.	29.	
9	Low	3.	9.	14.	56.	82.	
10	Low	2.	9.	15.	56.	82.	
11	None	0.	13.	11.	35.	59.	
12	Low	2.	10.	14.	56.	82.	
13	High	3.	11.	9.	78.	101.	Sp. gravity high
14	O. K.	5.	10.	15.	73.	103.	Passed
15	None	0.	12.	9.	21.	42.	
16	None	0.	10.	6.	63.	79.	
17	O. K.	5.	11.	13.	73.	102.	Passed
18	Low	1.	10.	15.	62.	88.	
19	None	0.	15.	9.	63.	87.	
20	Low	2.	9.	13.	49.	73.	
21	None	0.	7.	10.	49.	66.	
22	None	0.	8.	12.	70.	90.	
23	O. K.	5.	11.	10.	73.	99.	Passed
24	Low	1.	9.	14.	56.	80.	
25	Low	1.	7.	13.	42.	63.	
26	Low	1.	6.	12.	21.	40.	
28	High	0.	10.	9.	28.	47.	
29	Low	3.	7.	14.	56.	80.	
30	None	0.	11.	14.	21.	46.	
32	None	0.	11.	14.	21.	46.	
33	None	0.	8.	12.	56.	76.	
34	Low	2.	9.	13.	56.	80.	
37	Low	1.	8.	13.	56.	78.	
38	None	0.	6.	11.	56.	72.	
39	Low	2.	8.	14.	56.	80.	
40	None	0.	11.	9.	21.	41.	
42	Low	3.	13.	14.	72.	102.	Low iron
43	Low	2.	9.	12.	56.	79.	
44	Low	5.	10.	12.	71.	98.	
45	Low	1.	6.	12.	70.	89.	
47	Low	4.	9.	15.	69.	97.	

GENERAL CONCLUSIONS

It should be noted that none of the iron-free inks had a total rating over 90., and the average for the thirteen inks of this type was 61. while the average for the iron-gall inks was 81. with a maximum rating of 103. It should also be noted that while samples Nos. 13 and 42 received total ratings of more than 100. because of their excellent showing in the "resistance to reagents" and "sunlight" tests the former was rejected because of its failure to meet the specifications on composition and keeping quality, the latter because of low iron content. Samples Nos. 5, 14, 17 and 23 fulfilled the requirements for "record ink" as shown by the detailed results and exhibits appended to this report, and these inks should be entirely satisfactory for use on the record books of this state.

Respectfully submitted,

JAS. A. NEWLANDS,
State Chemist.

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Hartford, Jan. 27, 1914.

James A. Newlands., Esq., State Chemist,
The Henry Souther Engineering Co.,
Hartford, Conn.

Dear Sir:—I beg to acknowledge receipt of your report under date of January 24th on the list of samples of ink submitted for examination.

It may be of interest to you to know that the inks approved by you are as follows:

No. 5, Carter's Record Ink,
No. 14, Stafford's Special Writing & Copying Ink,
No. 17, Carter's Combined Writing & Copying Ink,
No. 23, Davids' Combined Writing & Copying Ink.

Very truly yours,

LUCIUS B. BARBOUR,
Examiner of Public Records.

As a check on our work in Connecticut duplicate samples of the four inks selected, and one of a manufacturer whose product was received too late for test (Sample 49), were sent to the Department of Commerce, Bureau of Standards, Washington. The following report received from them confirms in every detail the State test.

DEPARTMENT OF COMMERCE
BUREAU OF STANDARDS
WASHNGTON.

REPORT ON THE EXAMINATION
OF
FIVE SAMPLES OF WRITING INK
SUBMITTED BY THE
EXAMINER OF PUBLIC RECORDS,
HARTFORD, CONN.

Such of the results obtained as can not be shown by the accompanying streaks are given in the following table:

Lab. No.	3399	3400	3401	3402	3403
Marked	No. 5	No. 14	No. 17	No. 23	No. 49
Grams iron per liter	6.84	6.69	7.59	6.92	6.07
Ferrous sulphate cryst., equivalent to iron, ...	34.03	33.31	37.79	34.43	30.22
Corrosion of pens (mg loss)	67.9	100.5	130.9	61.6	89.3
Keeping quality (12 days)	trace of sediment	slight sediment	slight sediment	much sediment	slight sediment

All of the samples when received contained some sediment, but the amount was not large except in No. 49 in which it was about ¼ inch deep.

A widely adopted standard formula for record inks prescribes that it shall contain at least 30 grams of crystallized ferrous sulphate (approximately 6 grams of iron) in one liter. A larger amount is to be re-

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garded as desirable, provided there is a sufficient quantity of tannin substance to produce a satisfactory black color.

The keeping quality of the ink and its corrosive action on steel pens are of secondary, though practical importance. The two are correlated because in order to prevent turbidity a certain amount of acid must be added, and this causes corrosion of steel pens. Neither need be considered if inkstands are cleaned and refilled frequently, are kept covered when not in use, and the pens are often changed.

The keeping quality was determined by placing a measured quantity of each ink in a small glass vessel loosely covered with filter paper to exclude dust, and allowing it to stand undisturbed for 12 days.

The corrosion was determined by immersing a pair of grease-free pens in a definite volume of ink for two days. The loss in weight is a measure of the corrosion.

The accompanying ink streaks were made by allowing one cubic centimeter of ink to flow freely across a tightly stretched inclined sheet of paper. Since all the necessary data are given on the same sheets there is no need of detailing them again.

Disregarding the corrosion test, but taking into account the tests made on the streaks and the analytical results, the inks were rated independently by two chemists by two different methods. They agreed that Nos. 5 and 17 are nearly equal in quality, the difference being slightly in favor of No. 17. Nos. 14 and 23 are not quite so good, though still excellent inks. No. 49 is distinctly inferior to the others.

S. W. Stratton,
Director.

Enclosures:
Ink Streaks
Test No. 15240
Washington, D. C., April 22, 1914.

Typewriter Ribbons

Hartford, Conn., August 20, 1914.

Hon. Lucius B. Barbour,
Examiner of Public Records,
Hartford, Conn.

Dear Sir:—The following report covers the examination of twenty-eight (28) typewriter ribbons representing samples of the products of various ribbon manufacturers purchased by you in the open market. The ribbons were received in a plain box, each ribbon having been marked with an individual number corresponding with a number on the original container retained at your office.

The ribbons were placed in a competition with each other in a series of tests which were rated as follows:

Resistance to sunlight . . .	45 points
" " reagents . . .	20 "
Character of the record . . .	20 "
Life of Ribbon	10 "
Type filling	5 "
	100

The above are the essential tests used at the Contracts Laboratory of the federal government, and the writer desires here to acknowledge his indebtedness to Dr. Percy H. Walker for valuable suggestions covering the requirements under which inks and typewriter ribbons are purchased for the government use. In addition to the above, tests on the relative

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capillary attraction of the ribbons and accelerated fading tests with ozone and with ultra violet rays were made, the results of which will be referred to in a later paragraph.

All impressions were made on the best quality rag paper, such as is used for the Probate Court record books of this state.

The reagents and sunlight tests were the same as those used for testing inks, the resistance to sunlight test running for eighty days instead of fourteen, the limit commonly used for typewriter ribbon tests.

For the Type Filling test the narrow ribbons were placed on a No. 5 Underwood and the wide ribbons on a Remington Typewriter. The letter "e" was written until the loop filled so as to necessitate cleaning, and in order to obtain a uniform stroke, the typewriter was operated by means of an apparatus shown opposite this page. The Character of the Record was determined by a study of the sheets from the above tests, noting color, clearness, tendency to smear, etc.

The Life of the Ribbon was determined by clipping a section of the ribbon three inches long over the letters a-e-i-n-r-A-O-U set up in a multigraph. These letters were taken in order to get a fair comparison of the effect with angular and curved letters commonly used. Sheets of paper were fed into the machine until the ink in the ribbon was practically exhausted, as shown by the dimness of the impression. One hundred imprints were found to be sufficient for a comparative test. Upon the completion of this number of imprints, the machine was stopped for a period of exactly five minutes after which five additional records were made to determine if the ribbons showed any material differences in their ability to draw ink from the unused portions of the ribbon by capilliary attraction. This test was also made by means of a special machine illustrated opposite this page. The results showed that while there are material differences in rate of "recovery" of the various ribbons, the information obtained does not add much to that developed by the Life of the Ribbon Test.

Samples of the imprints from each typewriter ribbon in competition were exposed to the action of ozone and ultra violet rays with the former for a period of seventy-five hours, with the latter for two hundred and forty hours. These accelerated fading tests produced effects on the imprints similar to those of the sunlight tests, but a noticeable feature not observed with the sunlight tests was the yellow effect of the ozone and ultra violet light on the paper, indicating that for the preservation of the records of the state, it is also of importance to guard against the use of paper which may seriously impair the permanence of these records.

A summary of the results of this investigation is given in the following table. Details and exhibits of the routine work are shown in the appendix submitted with this report, and it will be necessary to consider here only the general conclusions.

As indicated by the foregoing table, most of the samples have given quite satisfactory results in the Resistance to Sunlight test, which is highly essential for producing permanent records. As permanence of record is the most important factor under consideration at this time, and in view of the fact that up to the present time no specific standard for typewriter ribbons has been adopted by this State, I would suggest that all ribbons having a rating of 85, or over, be accepted. All of the ribbons passed will produce lasting records, and differ mainly in minor characteristics, as indicated in the table. On this basis the ribbons rejected are those which received ratings on the Type Filling tests of less than three, and two of these gave very poor results in the test for smearing.

As a result of this investigation the typewriter ribbons considered acceptable for producing permanent records for this state are indicated in the following list:

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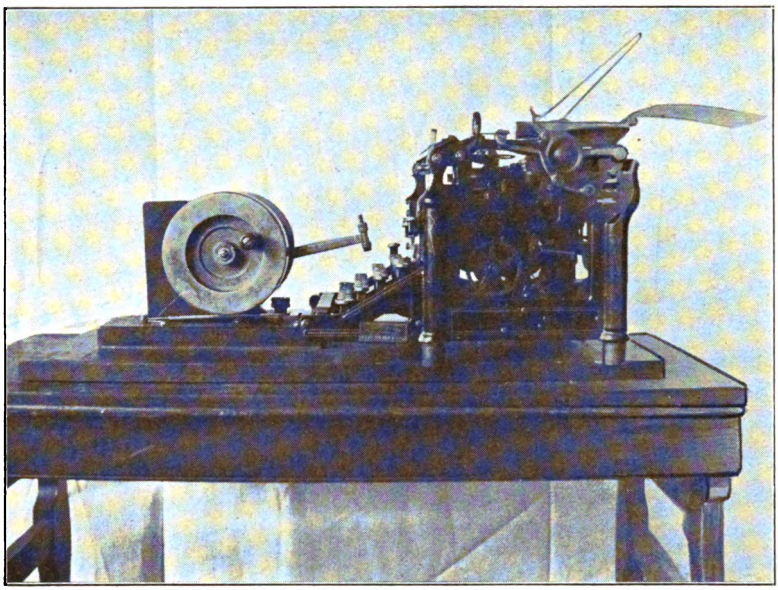
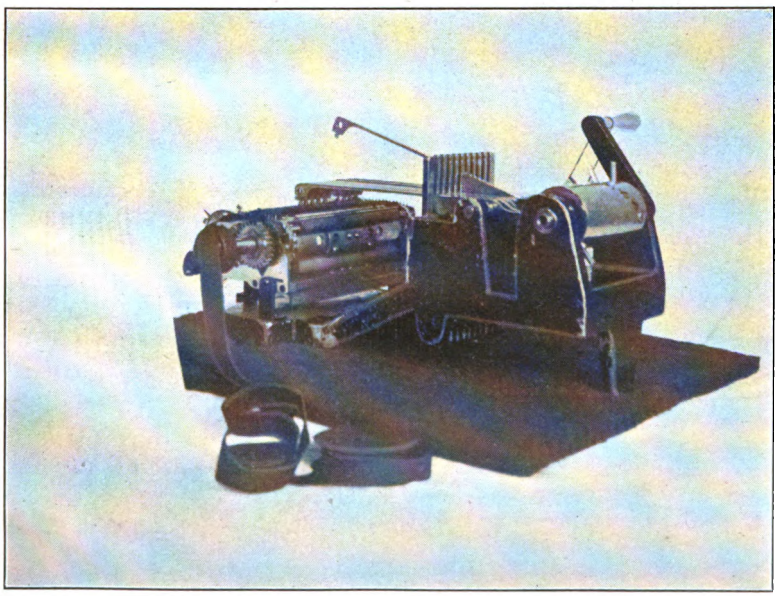


"Apparatus for regulating stroke of typewriter key."



"Apparatus for determining capillary attraction of typewriter ribbons."

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Summary of Typewriter Ribbon Tests
for the
State of Connecticut

Aug. 20, 1914

Number	Character of Record							Resistance to Reagents Time — 24 hours											Size of Ribbon			Capillarity		
Laboratory number	Typefilling	Color	Inking	Clearness	Smearing	Average Rating	Life of Ribbon	Resistance to Sunlight 80 days	Water	Color	Alcohol - 95%	Color	Water-50% Ammonia - 10%	Color	Alcohol-90% Ammonia - 10%	Color	Hydrochloric Acid 2%	Sulphuric Acid 2%	Available Chlorine 1%	Average Rating	Feet Length	Inches Width	Edge	Impression Recovery Testing Machine	Multigraph	Total Rating	State Number
Maximum Rate	6			20	20		10	95	20		20		20		20		20	20	20					10	10		
85428	5	Black		16	16	16	3	42	20	Black	20	Black	20	Black	20	Black	20	20	20	20	32	11	1/2 Bound	8	7	86	51
85429	5	"		20	20	20	3	47	20	"	12	Brown	16	Pink	12	Pink	20	20	20	17	37	9	" "	9	5	89	52
85430	4	"		16	20	18	9	44	20	"	12	"	16	Black	16	"	20	20	20	18	35	0	" "	8	7	93	53
85431	5	"		20	20	20	8	47	20	"	16	Black	20	"	16	"	20	20	20	18	35	4	" "	6	7	96	54
85432	5	"		20	20	20	8	45	16	Violet	12	Violet	16	"	20	Black	20	20	20	18	33	3	" "	7	7	96	55
85433	3	"	+	16	20	17	8	47	20	Black	12	Brown	20	"	10	Pink	20	20	20	17	41	4	" "	9	10	90	56
85434	5	"		20	20	20	10	42	20	"	12	"	20	"	12	"	20	20	20	18	36	6	" "	10	8	95	57
85435	2	"		12	18	14	3	43	16	Pink	12	Violet	16	Pink	20	Black	20	20	20	18	35	0	" "	3	6	80	58
85436	5	"		20	20	20	8	41	20	Black	16	"	20	Black	16	Pink	20	20	20	19	39	6	" "	7	7	93	59
85437	5	"		20	20	20	8	45	20	"	20	Black	20	"	20	Black	20	20	20	20	38	11	" "	7	7	98	60
85438	5	"		20	20	20	9	41	20	"	16	"	20	"	20	"	20	20	20	19	37	5	" "	3	3	97	61
85439	5	"	+	20	20	19	9	42	16	"	12	Brown	20	"	8	Pink	20	20	20	17	35	10	" "	9	8	92	62
85440	4	"	+	12	20	15	9	44	12	Violet	12	"	20	"	20	Black	20	20	20	18	36	11	" "	10	7	90	63
85441	3	"		12	20	16	5	44	20	Black	16	Violet	20	"	20	"	20	20	20	19	38	1	" "	7	7	88	64
85442	5	"		20	20	20	6	41	20	"	12	Brown	20	"	12	Pink	20	20	20	18	37	8	" "	7	8	90	65
85443	5	"		20	20	20	6	43	20	"	12	Violet	16	"	20	Black	20	20	20	18	38	10	" "	8	6	92	66
85444	5	"		20	20	20	0	43	20	"	16	Black	20	"	16	Pink	20	20	20	19	36	3	" "	3	0	87	67
85445	5	"		16	20	18	6	44	12	"	8	Brown	20	"	12	"	20	20	20	16	38	1	" "	9	9	89	68
85446	5	"		20	20	20	8	43	20	"	16	Violet	20	"	20	Black	20	20	20	19	37	6	" "	7	5	96	69
85447	5	"		20	20	20	10	42	16	"	16	"	20	"	20	"	20	20	20	19	36	3	" "	9	8	96	70
85448	2	"		8	8	8	8	47	20	"	16	Brown	20	"	20	"	20	20	20	19	32	6	" Ragged	6	5	81	71
85449	5	"		20	20	20	7	41	16	"	12	Violet	16	Pink	16	Pink	20	16	20	17	38	9	" Bound	3	5	90	72
85450	5	"	+	12	16	13	6	44	20	"	16	Black	20	Black	20	Black	20	20	20	20	37	5	" "	4	5	87	73
85451	4	"		16	16	16	9	42	20	"	16	Brown	20	"	16	Pink	20	20	20	19	39	5	" "	6	9	90	74
85452	0	"	++	4	8	4	8	44	20	"	12	"	20	"	12	"	20	16	20	17	19	11	1 "	9	9	73	75
85453	5	"		18	20	18	6	41	20	"	12	"	20	"	8	"	20	20	20	17	38	0	1/2 "	8	7	87	76
85454	4	"		16	16	16	7	42	16	"	12	"	20	"	8	"	20	20	20	17	36	7	" "	8	9	96	77
85455	4	"		16	12	14	6	44	12	Violet	12	"	16	"	20	Black	20	20	20	17	32	11	" "	5	6	85	78

\+ One point off for slight overinking

++ Two " " " considerable "

Jas. A. Newlands

State Chemist.

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Sample Number	Rating	
60	98.	Recommended
54	96.	"
55	96.	"
70	96.	"
57	95.	"
69	95.	"
61	94.	"
53	93.	"
59	93.	"
62	92.	"
66	92.	"
56	90.	"
63	90.	"
65	90.	"
72	90.	"
74	90.	"
52	89.	"
68	89.	"
64	88.	"
67	87.	"
73	87.	"
76	87.	"
51	86.	"
77	86.	"
78	85.	"
71	81.	Not Recommended
58	80.	" "
75	73.	" "

Respectfully submitted,

JAS. A. NEWLANDS,
State Chemist.

In accordance with the foregoing report from the State Chemist the following ribbons are hereby selected and recommended for use on Public Records in this State:

Manufacturer	Name of Ribbon
Ault & Wiborg Co., Cincinnati, Ohio.	Non-Filling Typewriter Ribbon.
The Carter Ink Co., Boston, Mass.	Carter's Director Typewriter Ribbon Carter's Ideal Typewriter Ribbon
Columbia Ribbon & Carbon Mfg. Co., New York City.	Columbia "Silk Gauze" Typewriter Ribbon Rainbow Non-Filling Typewriter Ribbon
Crown Ribbon & Carbon Mfg. Co., Rochester, N. Y.	Crown Brand Typewriter Ribbon
De Fi Mfg. Co., New York City.	De Fi Typewriter Ribbon
M. F. Donovan Co., Auburn, N. Y.	Criterion Typewriter Ribbon
Kee Lox Mfg. Co., New York, N. Y.	Kee Lox Typewriter Ribbon
Manifold Supplies Co., Brooklyn, N. Y.	Panama Typewriter Ribbon

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Miller-Bryant-Pierce Co., Aurora, Ill.	Carnation Typewriter Ribbon Elk Brand Typewriter Ribbon
Mittag & Volger, Park Ridge, N. J.	"Eureka" Ribbon "Tagger" Typewriter Ribbon
New England Carbon Mfg. Co., Boston, Mass.	Blue Ribbon Brand Typeriter Ribbon Commercial Brand Typewriter Ribbon
H. Ohashi & Co., New York City.	Ohashi's Commercial Brand Typewriter Ribbon Ohashi's Standard Brand Typewriter Ribbon
Plimpton Mfg. Co. Hartford, Conn.	Charter Oak Brand Typewriter Ribbon
Remington Typewriter Co., New York City.	Regal "Remtico" Brand Ribbon "Remtico" Paragon Ribbon
Republic-Dodge Mfg. Co., Brooklyn, N. Y.	Du-Ra-Bul Typewriter Ribbon
H. M. Storms Co., New York City.	American Brand Typewriter Ribbon
Underwood Co., New York City.	Underwood Typewriter Ribbon
F. S. Webster & Co. Boston, Mass.	The Webster Star Brand Typewriter Ribbon

Personal Property

Hartford, September 16, 1914.

Lucius B. Barbour, Esq.,
Examiner of Public Records.

Dear Sir:—

I have your favor in which you say:

> "I respectfully request interpretation of Chapter 52 of the Public Acts of 1913.
>
> The fact has been brought to my attention, and I fully appreciate the situation, that the reserving of a record book solely for the purpose of recording instruments relating to personal property is working considerable hardship and inconvenience to many of the recording officers in the state. I write specifically to ask if the reservation of a certain portion of a record book already in use properly labelled as a place to record such instruments would be in compliance with the statute."

The statute to which you refer reads as follows:

> "Notices of intent to sell, bills of sale, conditional sales, chattel mortgages, and all other instruments relating exclusively to personal property, when left for record by any town clerk shall be recorded by him in a book kept exclusively for the recording of such instruments. Such record shall be kept in the manner provided for the keeping of the land records, and town clerks shall receive fees for the recording of such instruments as provided in section 4845 of the general statutes."

Other statutes provide for recording instruments relating to personal property. This act simply provides for recording them in a book kept exclusively for that purpose, as a matter of convenience for the public. The word "book" is not synonymous with the word "volume". There

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may be many books in one volume. The Bible contains many books. "Paradise Lost" is made up of several books. Hence, a record book for instruments relating to personal property may be a part of a volume containing a record book for deeds of real estate, and a record volume in use may be properly divided into two books.

Therefore, I am of the opinion that the reservation of a certain portion of any record book already in use, properly labelled as a place to record instruments relating to personal property, will satisfy the purpose of the legislature and be a sufficient compliance with the statute.

Very truly yours,

JOHN H. LIGHT.
Attorney General.

RECOMMENDATIONS

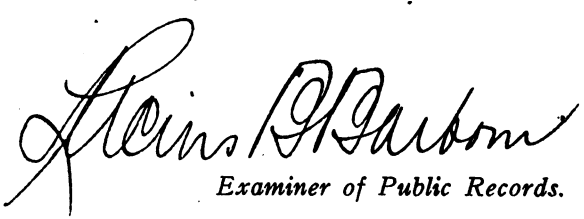
As pointed out in my previous report, I am more fully convinced at this time that a general index of the several series of records, particularly Land Records, is essential. I am fully convinced that a compilation of such should be obligatory and not optional as provided in Section 1837 of the General Statutes and recommend that such action be considered.

In view of the successful results obtained in the testing of inks and ribbons I recommend that paper be given as thorough examination and test. There are but few brands of papers suitable for record purposes and I believe the selection of these should be made from actual tests.

CONCLUSION

I have the pleasure of again reporting the courtesy and consideration with which I have been received in every town. This naturally relieves this office of many possible unpleasant features and the confidence in and approval of my suggestions, expressed and implied, has been most gratifying to me and helpful in making work in this office a pleasure and I trust a success.

Respectfully submitted,



Examiner of Public Records.

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